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Plants For A Purpose



United States Department of Agriculture
Soil Conservation Service
Plant Materials Center
Coffeyville, Mississippi



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Your World Is Filled With The Wonder Of Plants

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A vigorous plant that would cover mine spoil areas could restore a ruined landscape and keep sediment out of rivers and lakes. Trees and forage plants might also provide an economic return so that the mine-scarred land would be productive again.

A plant that produces nuts or fruit and would thrive in pine plantations could transform these wildlife deserts into forests enjoyed by quail, doves, squirrels, deer and turkeys.

A plant with the ability to cover poor soils quickly, to withstand moderate water velocity, and to persist with little or no maintenance, in sun or shade, could control erosion that now mars many thousands of miles of roadbanks.

A plant that could tolerate extended periods of total inundation, extended dry periods, and low fertility, and yet could form a dense mat across the water line would protect the shoreline of lakes and reservoirs from natural wave erosion.

And a plant with deep extensive roots but light topgrowth would help prevent the ugly streambank erosion that now contributes to flooding and pollution.

Since the Coffeyville Center serves Mississippi, Arkansas, Louisiana and parts of Tennessee and Alabama, the plants which are tested here must be adapted to the soils and climate of this region.

These problem-solving plants are not easy to find, and only superior ones make the grade to final public release through state agricultural experiment stations.

But already many plants tested at the Center are at work helping to improve your environment. And at the Center, the search for superior plants goes on.



ABOVE: 'Halifax' maidencane

'Halifax' maidencane flourishes on Lake Chewalla, a Soil Conservation Service-designed flood prevention reservoir in the Holly Springs National Forest in Marshall County, Mississippi. Plants for shoreline erosion control must be shade-tolerant.

Maidencane works well on small lakes and channels. For example, Boy Scouts planted maidencane on the face of a dam they own in Copiah County, Mississippi, and completely controlled wave action.

Scout leaders estimate they saved \$80,000—the low bid for installing rock riprap to prevent damage by wave action.

'Halifax' maidencane was tested at the Plant Materials Center and released in 1974 by

the Soil Conservation Service and the Mississippi Agricultural and Forestry Experiment Station.

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CATALOGING = PREP

Mine spoil areas



High sodium soil



Soil damaged by industrial wastes



Shallow soils over limestone



Streambank erosion

**Can You Find
The Plants To Solve
These Problems?**

The Search For Plants

Plant explorers have combed the world looking for plants to solve environmental problems. But some of the most valuable plants have been discovered in backyards, along roadsides or even in corners of busy cities. 'Pensacola' bahiagrass was one of these.

'Pensacola' bahiagrass, a native of South America, is now established on some 10 million acres (4 million hectares) of pasture in the South. All this acreage is the outgrowth of one little patch discovered in 1937, growing by accident in the city square in Pensacola, Florida. Collected and tested at Soil Conservation Service plant materials centers, and finally released, 'Pensacola' bahiagrass is now recognized as one of the most valuable forage plants in the South.

To find the plants, you must first be familiar with the problems you want to solve.

In the area served by the Coffeeville Center there are twenty-eight identified problems for which adequate plants are not available. Nine of these problems are considered high priority, but all twenty-eight are serious.



ABOVE: Collecting salt-tolerant plants on the Mississippi Gulf Coast. These plants may one day solve problems on inland sites where industrial waste has created briny soils.

LEFT: Alkali sacaton, a western plant now being field tested in Louisiana and Mississippi, pulls salt from the soil, as evidenced by these crystals on the leaf. A plant like this may one day solve problems of dry, highly erodible sodium soils.

Plants Are First Tested On The Center



ABOVE: *Initial observation plots at the Coffeeville Plant Materials Center.*

In initial observation plots at the Center, plants are evaluated for many factors, including seedling vigor, forage, ground cover, seed production, and tolerance to cold and drought. Seeds from the most promising specimens are planted for additional seed. Finally, superior plants are field tested on the lands of soil conservation district cooperators.

Conservationists call on agricultural experiment stations or university laboratories for help with special problems, such as plant disease or insect damage.

High Priority Problems:

- Streambank erosion on large channels
- Roadside erosion
- Shoreline erosion on large lakes
- Erosion on surface-mined areas
- Erosion on soils damaged by industrial wastes
- Controlling erosion and producing forage on high sodium soils
- Soil protection and forage production on shallow soils over limestone
- Providing wildlife food in overgrazed areas
- Providing wildlife food in pine plantations

The Second Step Is Field Testing

More than 4600 plants have been tested at the Coffeyville Center since it was established in 1960. Some of them, like 'Meechee' arrowleaf clover and 'Halifax' maidencane are already working for you. Many, many more will have to be tested before the right ones are found to solve the conservation problems of today and tomorrow.

Plants are grown in the open, under the same weather conditions they will have to endure if they graduate to commercial use.

Some of the growing conditions can be simulated on the Center, but most of the plantings for evaluation must be made at other locations. Within the area served by the Center there are vast differences in soils and climate, ranging from the marsh and semi-tropical climate of New Orleans to the rocky soils and cold weather of the Ozark Mountains.

If a plant does well at the Center, it might be field tested in northwest Arkansas or on the chalky soil of the Alabama Blackland.

Plants growing on sites away from the Center are also evaluated by specialists with the Soil Conservation Service.

ABOVE, LEFT: *Amur honeysuckle*, now being field tested at Ashdown, Arkansas, shows promise of producing wildlife food under shade—a need in pine plantations.

ABOVE RIGHT: *Indiangrass* selections being tested at Harrison, Arkansas for soil and climatic adaptation.

RIGHT: *Kleingrass* on a test plot near Winnsboro, Louisiana, shows promising growth on high sodium soil, when compared with native vegetation.



For each one selected, over a hundred are tested

Only Superior Plants Are Released



'Meechee' arrowleaf clover was released for commercial production in 1969. It is probably the highest producer of forage of any of the annual clovers and will grow on a wide range of soils.

This palatable and dependable reseeding annual winter legume already covers many thousands of acres throughout the area served by the Center. Developed to meet the need for an improved forage plant, 'Meechee' arrowleaf clover has superior ability to fix nitrogen for soil enrichment. In turn, this reduces the amount of nitrogen fertilizer needed.

Plants Tested at the Center and Released for Commercial Production:

- 'Chiwapa' Japanese millet (for wildlife food). Released in 1967
- 'Meechee' arrowleaf clover (for high forage production). Released in 1969
- 'Wilmington' bahiagrass (for pasture and erosion control). Released in 1971
- 'Halifax' maidencane (for streambank erosion control). Released in 1974

In addition, many other plants evaluated and tested at the Center have come into common use. Among these are sawtooth oak, bicolor lespedeza, and autumn olive.

All of the Center's formal releases so far are of plants established from seed, except for 'Halifax' maidencane which must be vegetatively established.

The Coffeeville Plant Materials Center is not a mass producer of plants or of seed. The foundation seeds of selected plants are released through state agricultural experiment stations for commercial production.



'Chiwapa' Japanese millet



'Halifax' maidencane



'Tufcote' bermudagrass (evaluated at the Center for climatic adaptation)



'Wilmington' bahiagrass



LEFT: Richard Hollier, Jr., a member of the St. Landry, Louisiana Soil and Water Conservation District Board, discusses plant materials with Mrs. Norella Taylor, a community leader in Opelousas, Louisiana.

ON FACING PAGE: Field trips to the Coffeeville Plant Materials Center are sponsored by the Arkansas, Louisiana, and Mississippi Associations of Conservation Districts. They usually begin with a tour of the Center's headquarters. Day lilies in the foreground are being evaluated for roadside erosion control.

Conservation Districts Are Important

Soil and water conservation districts play an important part every step of the way.

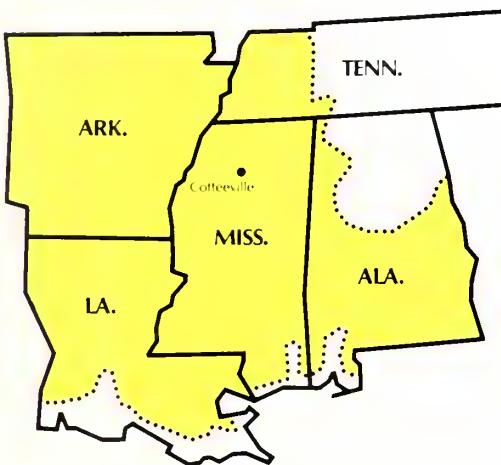
Districts are subdivisions of state government with legal responsibility to plan and implement a broad program of soil and water conservation. They receive technical assistance and other help from a variety of sources, but primarily from the Soil Conservation Service.

Districts define conservation problems experienced in the communities they serve. Their recommendations form the basis for establishing priorities for plant testing at the Plant Materials Center.

Field testing away from the Center is done on the land of individuals or groups cooperating with the districts.

Finally, district leaders help to demonstrate and promote the use of new plants proven beneficial to conservation programs.





The Plant Materials Center at Coffeyville, Mississippi, operated by the United States Department of Agriculture, Soil Conservation Service, was established in 1960. It serves Mississippi, Louisiana, Arkansas, and parts of Tennessee and Alabama.

Applicants for all Department programs will be given equal consideration without regard to race, color, sex, creed, or national origin.

Cooperating Agencies:

Conservation districts of Mississippi, Louisiana and Arkansas
Agricultural experiment stations of Arkansas, Louisiana, and Mississippi
Soil and water conservation commissions of Arkansas, Louisiana and Mississippi
Science and Education Administration, USDA
Alcorn State University, Lorman, Mississippi
Southern University, Baton Rouge, Louisiana
Mississippi State University
University of Arkansas
Louisiana State University
Louisiana Technical University
Forest Service, USDA
United States Army, Corps of Engineers
Arkansas Highway Department
Louisiana Department of Wildlife and Fisheries
Louisiana Office of State Parks
Louisiana Office of Forestry



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